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### Paper:

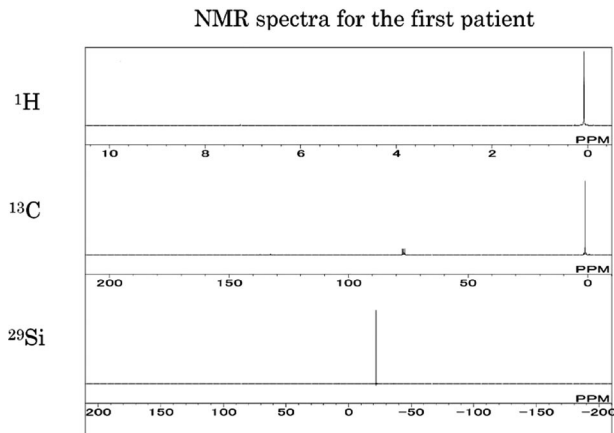
Rozen, W., Whitaker, I., Ting, J., Ang, G. & Acosta, R. (2012). Deep Inferior Epigastric Artery Perforator Flap Harvest after Abdominoplasty with the Use of Computed Tomographic Angiography. *Plastic and Reconstructive Surgery*, 129 (1), 198e-200e.

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**Fig. 2.** Resultant nuclear magnetic resonance spectra for the first patient. The chemical shift in the hydrogen-1, carbon-13, and silicon-29 nuclear magnetic resonance spectroscopy results showed a single-peak pattern ( $\delta = 0.07, 1.04$ , and  $-21.9$ ) that correlated with polydimethylsiloxane.

implanted materials. Nevertheless, it is impossible to identify the components of materials precisely with these imaging techniques. In contrast, nuclear magnetic resonance spectroscopy is a useful method of component analysis of unknown implanted materials. This technique provides a specific spectral pattern for each material so that the components of implanted materials can be determined easily and precisely.<sup>2</sup>

Postoperative complications of body contouring surgery using synthetic materials might be referred to as iatrogenic diseases. Implanted materials may cause human adjuvant disease and, in the worst cases, death.<sup>3</sup> These synthetic materials should be used under strict regulation; however, in some parts of the world, especially in Asian countries, off-label materials or unknown materials have been commonly used. Nuclear magnetic resonance spectroscopy may be a useful tool for plastic surgeons to prevent inappropriate use of off-label materials and promote safe clinical applications.

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**Takahisa Okuda, M.D., Ph.D.**

Department of Plastic, Reconstructive,  
and Aesthetic Surgery and

Department of Legal Medicine and NMR Laboratory

**Keiko Hirakawa, Ph.D.**

Department of Legal Medicine and NMR Laboratory

**Hakan Orbay, M.D.**

Department of Plastic, Reconstructive,  
and Aesthetic Surgery

**Youkichi Ohno, M.D., Ph.D.**

Department of Legal Medicine and NMR Laboratory

**Hiko Hyakusoku, M.D., Ph.D.**

Department of Plastic, Reconstructive,  
and Aesthetic Surgery  
Nippon Medical School  
Tokyo, Japan

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Correspondence to Dr. Okuda  
Department of Plastic, Reconstructive,  
and Aesthetic Surgery  
Nippon Medical School  
1-1-5 Sendagi  
Bunkyo-ku, Tokyo 113-8602, Japan  
ta-okuda@nms.ac.jp

## DISCLOSURE

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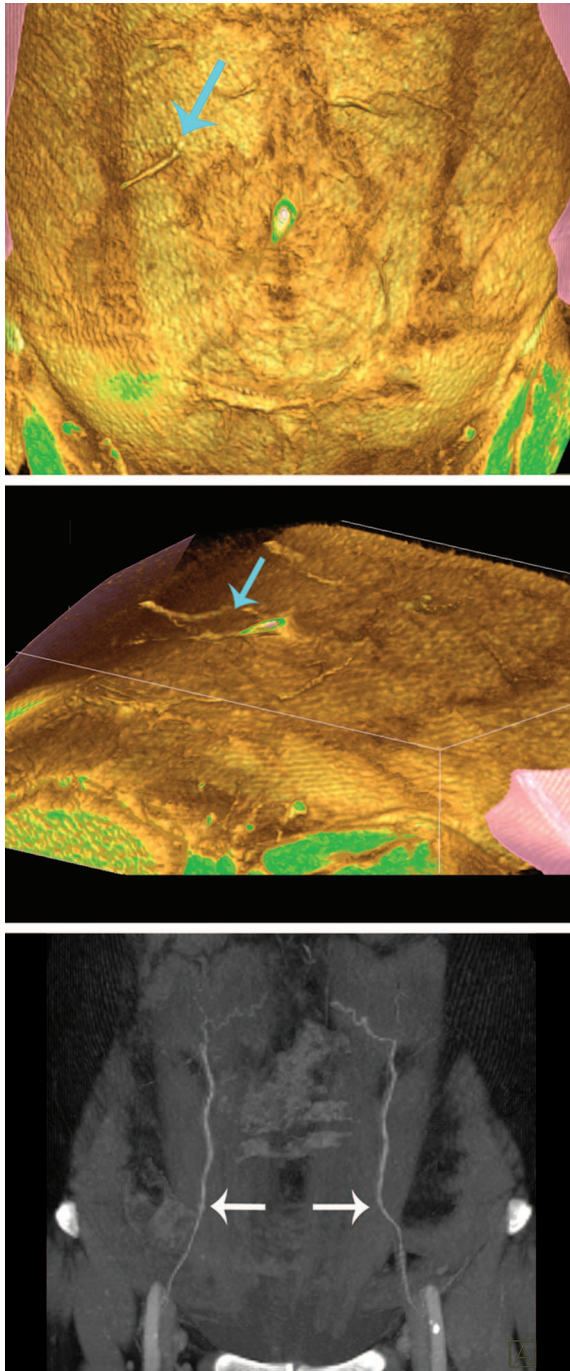
## Deep Inferior Epigastric Artery Perforator Flap Harvest after Abdominoplasty with the Use of Computed Tomographic Angiography

*Sir:*

**P**revious abdominal surgery has long been thought to be detrimental to flap survival in patients undergoing transverse abdominis myocutaneous (TRAM) and deep inferior epigastric perforator (DIEP) flap surgery. In particular, a previous abdominoplasty has been considered a contraindication because of the likely interruption of the perforating vessels essential in flap design and survival. This reasoning was hypothesized by Hartrampf et al. in their first article describing the TRAM flap in 1982,<sup>1</sup> and although based on a theoretical assumption, it has remained poorly studied since.

In recent times, several case reports have described the survival of a TRAM flap after abdominoplasty<sup>2,3</sup>; however, the same undertaking in a DIEP flap has not been described. With the need to isolate a single perforator, such an undertaking is clearly more precarious than in a musculocutaneous flap. The recent ability to map perforators preoperatively with computed tomographic angiography may change such presumptions, and the use of contemporary technologies of this type has allowed the plastic surgeon to offer patients reliable procedures that would not have been considered in the past.<sup>4,5</sup> We present a case report of a patient who successfully underwent a DIEP flap breast reconstruction 6 years after a full abdominoplasty. To our knowledge, this is the first reported case of this type.

A 58-year-old woman presented for a delayed postmastectomy breast reconstruction. She was otherwise well but had undergone a full abdominoplasty 6 years previously, with “limited” undermining of the upper flap having been



**Fig. 1.** Computed tomographic angiogram of the abdominal vasculature in a 58-year-old woman who had undergone previous abdominoplasty. Although there were no infraumbilical perforators, several large supraumbilical perforators were present, with a large, 2-mm, right perforator (blue arrow) selected (above and center). The perforators were shown to arise from the deep inferior epigastric arteries (white arrows, below).

performed. The patient sought an autologous reconstruction, and although other autologous options were considered, her abdominal wall was sought as a potential option. Given her previous abdominoplasty, preoperative computed tomographic angiography was performed to assess the presence and location of any remaining deep inferior epigastric artery perforators.

Computed tomographic angiography demonstrated, as expected, the absence of all infraumbilical deep inferior epigastric artery perforators. However, there were several deep inferior epigastric artery perforators immediately above the umbilicus that remained intact and were highly suitable for a DIEP flap. As shown in Figure 1, a large, 2-mm, right perforator was selected. By designing the DIEP flap paddle to incorporate this perforator and its subcutaneous ramifications, the flap was raised and transferred in the usual fashion for breast reconstruction. The flap was well perfused throughout the postoperative period, and there were no flap-related or donor-site complications (Fig. 2).

It is important for plastic surgeons to offer patients reconstruction only when flap anatomy is both predictable and reliable. Breast reconstruction using the TRAM flap and its variations in patients with preexisting abdominal scars is controversial; however, such scars are not a contraindication with appropriate planning and flap design.<sup>5</sup> Particularly with the use of preoperative imaging, DIEP flap surgery can be performed on patients in the presence of abdominal scarring. Standard procedures can affect the abdominal wall vasculature in variable ways, and imaging can highlight not only the preserved vasculature but also new vessels that may be present following revascularization or neovascularization. Traditionally, a DIEP flap would not normally be considered following a full abdominoplasty and umbilical repositioning; however, the current case highlights the importance of both an individualized



**Fig. 2.** Twelve-month postoperative photograph of a left DIEP flap breast reconstruction after previous abdominoplasty.



approach and the adequate investigation and planning of perforator flap options.

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**Warren M. Rozen, M.B.B.S., B.Med.Sc., Ph.D.**

**Iain S. Whitaker, M.A.Cantab., M.B.B.Chir., Ph.D.**

**Jeannette W. C. Ting, M.B.B.S., Grad.Dip.Surg.Anat.**

**G. Gleda Ang, M.B.B.S., B.Med.Sc.**

**Rafael Acosta, M.D.**

Jack Brockhoff Reconstructive Plastic Surgery Research Unit

Department of Anatomy and Cell Biology  
University of Melbourne  
Parkville, Victoria, Australia

Correspondence to Dr. Rozen

Jack Brockhoff Reconstructive Plastic Surgery Research Unit

Room E533

Department of Anatomy  
University of Melbourne

Grattan Street

Parkville 3050, Victoria, Australia

warrenrozen@hotmail.com

## DISCLOSURE

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potential to be limb or life threatening, occurs when disruption of the vessel wall leads to extravasation of blood and formation of a hematoma that is contained by the surrounding tissues.<sup>1</sup> Although there are multiple causes, most cases are the result of penetrating injuries, such as gunshot or stab wounds, or intravenous drug abuse.<sup>1,3</sup> Pseudoaneurysm of the brachial artery often presents as an expanding, painful mass, with overlying erythema and induration. There may be a palpable thrill or audible bruit, decreased temperature, or cyanosis.<sup>1,3,4</sup> In addition, the distal extremity may demonstrate loss of pulses and paresthesias from compression of the median nerve.<sup>1–5</sup> Arterial thrombi may develop within the pseudoaneurysm, leading to embolic events distally, resulting in terminal ischemia, gangrene, and amputations.<sup>4</sup>

A 42-year-old, right-hand-dominant woman with a history of intravenous drug abuse presented to the emergency department with pulsatile bleeding from a small wound in her left antecubital fossa. She complained of a dark, raised, tender “scab” in this area, and a similar lesion in the right antecubital fossa (Fig. 1); both had been present for several months. On the morning of presentation, she reported picking the lesion on the left, and blood began “squirting” from the area.

Examination of the right arm demonstrated a 3-cm subcutaneous mass in the antecubital fossa with a 1-cm lesion on the skin. No cyanosis was noted distally on the right, with normal range of motion and sensibility.

Examination of the left arm revealed no palpable radial or ulnar pulse at the wrist and cyanotic-appearing fingers to the metacarpophalangeal joint. She had full range of motion of her fingers and wrist and diminished median nerve sensibility, and her forearm compartment was soft but tender distal to the mass. Removal of the left pressure dressing, placed in the field, revealed active arterial bleeding. A tourniquet was placed, and she was taken immediately to the operating room for surgical exploration.

In the operating room, control of the proximal and distal brachial artery was performed first, followed by identification of the median nerve and volar forearm fasciotomy. The pseudoaneurysm was dissected from a very friable and adherent vascular bed. The lesion was 5 cm in diameter and eroded, with an associated thick-

## Management of Bilateral Brachial Artery Pseudoaneurysms in an Intravenous Drug User

Sir:

**W**e write to you concerning a case of bilateral brachial artery pseudoaneurysms secondary to intravenous drug abuse, one of which required emergent repair for uncontained rupture. Arterial pseudoaneurysm, a rare but serious condition with the

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